

## Notes

### Gesneriaceae as a larval hostplant of *Hyposcada virginiana* (Nymphalidae: Ithomiinae)

Knowledge of the hostplant interactions within the subfamily Ithomiinae have been important to our understanding of neotropical butterfly evolution and ecology (e.g., Mielke & Brown 1979; Gilbert 1983; Ackery & Vane-Wright 1984; Brower 1984; Boppré 1984; Brown 1987; DeVries & Stiles 1990; Vasconcellos Neto 1991). Broad patterns of hostplant use in the family Nymphalidae are well known, and it is clear that the Ithomiinae is largely composed of specialists on the Solanaceae, with a few species that use the Apocynaceae (Drummond & Brown 1987; DeVries 1986, 1987; Ackery 1988). There is, however, one frequently cited exception to the overall pattern of ithomiine hostplant interactions: Haber (1978) reported that Costa Rican *Hyposcada virginiana evanides* Haensch may oviposit on the genera *Columnea* and *Drymonia* (Gesneriaceae).

The potential use of Gesneriaceae as a larval hostplant by any member of the Nymphalidae is singular. In fact, the only records of Gesneriaceae in the extensive, world-wide review of nymphalid hostplants by Ackery (1988) are those of Haber (1978). In conflict with Haber's records (but in line with other ithomiine host records) are observations by Drummond & Brown (1987) that Brazilian *Hyposcada egra* (Hewitson) oviposited on a plant thought to be *Markea* (Solanaceae), and that the larvae were reared in the laboratory on *Juanulloa* (Solanaceae). Thus, with our understanding of nymphalid hostplant relationships in general, and those of the Ithomiinae in particular, there is need for verification or rejection of Gesneriaceae as a hostplant of *Hyposcada* (DeVries 1986, 1987; Drummond & Brown 1987; Ackery 1988). Here I provide the first direct field corroboration of Haber's (1978) suggestion that *Hyposcada* uses Gesneriaceae as a larval hostplant.

On 12 April 1990 at 0810 hrs I observed a female *Hyposcada virginiana* oviposit 3 eggs on the underside of an intermediate age leaf of *Drymonia* sp. (Gesneriaceae) at Jardín Botánico Wilson, San Vito de Java, Costa Rica. The woody, hemiepiphytic plant with glabrous, semi-succulent leaves, was attached to the side of a palm tree approximately 5 m above the ground, and was in shade at the time of oviposition. Each oviposition act was separated by about a 30 second interval, and the eggs were deposited near the middle of the leaf. The white eggs were large for an ithomiine ( $\approx 2$  mm diameter), bore a sculpturing that could be detected without the aid of a lens, and were slightly wider towards the micropylar region than the base. First instar larvae (body entirely pale grey with shiny black head, and no tubercles) hatched 5 days later, ate the egg shell, rested for 24 hours, and then began eating small, round holes in the leaf. Second, third, and fourth instars bore no projections or papillae, all were shiny, semi-transparent grey with a dull yellow band at the interface of venter and lateral areas that extended from segment A-8 to T-1, continuing across the anterior margin of T-1. In all instars the head was shiny black, and without patterns or relief. Although all three larvae were healthy and growing vigorously, a necessary move to a different field site where no acceptable hostplant occurred prohibited rearing them beyond

fourth instar. The larvae were preserved in ETOH and specimens are in both the author's voucher collection and that of the Museo Nacional de Costa Rica.

None of the larvae fed at the leaf margin, but as is typical of many ithomiines that feed on Solanaceae, they ate round holes in the interior of the leaf blade, then moved to another undamaged section to eat another hole. The larval feeding behavior left the once entire *Drymonia* leaf with a large number of irregular holes. The larvae were cryptic while on the plant and fell into what Ackery (1988) pointed to as the typical Solanaceae feeding type of ithomiine. A casual inspection of 10 other *Drymonia* sp. plants in the area showed that most of their leaves had feeding damage similar to that caused by *H. virginiana* larvae. However, I found no other *H. virginiana* larvae at this or subsequent inspection over an intermittent three month period.

The observations here raise three points. First, although it is unknown whether the *H. virginiana* larvae would have produced adults, the present observations support Haber's (1978) records that Gesneriaceae is a hostplant for Costa Rican *Hyposcada*. Secondly, the general vegetative similarity between some hemiepiphytic Solanaceae (i.e., *Markea*, *Juanulloa*) and some hemiepiphytic Gesneriaceae (rounded, glabrous, semi-succulent leaves) allows for the possibility that the *H. egra* oviposition record (Drummond & Brown 1987) was actually on a Gesneriaceae. Finally, when the observations of Drummond & Brown (1987) and those here are considered together, they suggest the possibility of some chemical similarity between Solanaceae and certain Gesneriaceae.

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## Manifesto on Conservation

Editor's note:

The Lepidopterological Society of Japan held its first seminar on the conservation of butterflies in June 1990. The conveners drafted, and the members present passed, a resolution on conservation. This resolution was provided by Prof. Atuhiro Sibatani and is published in its entirety below.

This action by the Japanese Society is a highly significant event. It makes a strong statement on behalf of a large grassroots body of both professional and amateur biologist members in a leading industrialized nation. It is a particularly remarkable document given its origins in a country heretofore notorious for neglecting environmental concerns in favor of immediate economic benefit. The thrust of the resolution correctly emphasizes the need to protect total biodiversity while minimizing the importance of individual species. We publish this as a model statement for many circumstances.

## Manifesto

A statement developed at the first seminar on *The Conservation of Butterflies as a Part of Nature*, 2-3 June 1990, Osaka, co-sponsored by the Lepidopterological Society of Japan and the Osaka Museum of Natural History.

Participants at the first seminar of the Lepidopterological Society of Japan (LSJ) have confirmed the following statements.

- The first cause of nature conservation shall not be the protection from extinction of individual species, but preservation of diversity in biological communities and ecosystems.
- This means to maintain, along with persistent diversity of individual gene pools and species, the integrity of systems which may well entail local alterations of these systems.
- Butterflies are pertinent bioindicators of the terrestrial ecosystem. Hence, the conservation of butterflies implies conservation of the entire ecosystem.
- In order to fulfill the objective of nature conservation, we are responsible and willing to work responsibly, not only to maintain nature's biodiversity, but also to restore this diversity in Japan as well as the world at large, under cooperation with other bodies and using butterflies as indicators.